Claim Listing:

This Claim Listing reflects all claim amendments and replaces all prior versions, and listings, of claims in the application. In brief, the claims have not been amended, relative to the previous Claim Listing.

1.–77. (Canceled)

78. (Previously presented) A method of treating a medical condition in a mammalian body, the method comprising:

forming an alginate bioreactor within a portion of the mammalian body, the alginate bioreactor including an alginate matrix; and

eluting a therapeutic agent from one of a therapeutic component or a cellular component dispersed within the alginate bioreactor.

79.–97. (Canceled)

98. (Previously presented) The method of claim 78, wherein forming the alginate bioreactor comprises injecting an alginate solution and an alginate linking agent into the portion of the mammalian body, and hardening the alginate solution to form the alginate bioreactor.

99. (Previously presented) The method of claim 78 wherein the alginate bioreactor includes an alginate matrix having a predetermined ratio of mannuronate alginate subunits and guluronate alginate subunits.

100. (Previously presented) The method of claim 78 further comprising:

determining a ratio of mannuronate alginate subunits and guluronate alginate subunits to provide a predetermined elution characteristic of the alginate bioreactor;

mixing mannuronate alginate subunits, guluronate alginate subunits, an alginate solvent, and one of a therapeutic component or a cellular component to form an alginate solution with the determined ratio of mannuronate alginate subunits and guluronate alginate subunits; and

adding an alginate linking agent to the alginate solution.

101. (Previously presented) The method of claim 78, wherein the alginate bioreactor controls the elution of the therapeutic agent.

102. (Previously presented) The method of claim 78, wherein the eluted therapeutic agent comprises nitric oxide.

103. (Previously presented) The method of claim 78, wherein the eluted therapeutic agent is selected from the group consisting of vascular endothelial growth factor, a biological anti-inflammatory agent, vitamin C, acetylsalicylic acid, a lipid lowering compound, a high-density lipoprotein cholesterol, a streptokinase, a kinase, a thrombolytic agent, an anti-thrombotic agent, a blood-thinning agent, a coumadin material, an anti-cancer agent, an angiogenic agent, an anti-angiogenic agent, an anti-rejection agent, a hormone, therapeutic component, cellular component, an anti-coagulant, an anti-platelet drug, an anti-thrombotic drug, an anti-proliferant, an inhibitory agent, an anti-stenotic substance, heparin, a heparin peptide, an anti-cancer drug, an anti-inflammatant, nitroglycerin, L-arginine, nitric oxide, an amino acid, a nutraceutical, an enzyme, a nitric oxide synthase, a diazeniumdiolate, a nitric oxide donor, rapamycin,

a rapamycin analog, paclitaxel, a paclitaxel analog, a coumadin therapy, a lipase, a protein, insulin, bone morphogenetic protein, and/or a combination thereof.

104. (Previously presented) The method of claim 78 further comprising:

mixing an alginate solution including an alginate premix and an alginate solvent;

providing an alginate linking agent;

injecting the alginate solution and the alginate linking agent into a portion of the mammalian body with an alginate injection system; and

hardening the alginate solution to form the alginate bioreactor.

105. (Previously presented) The method of claim 104, wherein the alginate linking agent is added to the alginate solution prior to injecting the alginate solution into the portion of the mammalian body.

106. (Previously presented) The method of claim 104, wherein the alginate linking agent is added to the alginate solution after injecting the alginate solution into the portion of the mammalian body.

107. (Previously presented) The method of claim 104, wherein the alginate linking agent is deposited in the portion of the mammalian body prior to injecting the alginate solution.

108. (Previously presented) The method of claim 104, wherein the added alginate linking agent comprises one of divalent calcium, divalent barium, divalent strontium, divalent magnesium, or a divalent cation.

109. (Previously presented) The method of claim 104, wherein the alginate solution is injected into the portion of the mammalian body with a syringe having at least one lumen.

110. (Previously presented) The method of claim 104, wherein the alginate solution is injected into the portion of the mammalian body with a bioreactor formation catheter.

111. (Previously presented) The method of claim 104, wherein the alginate solution is injected into the portion of the mammalian body with a high-pressure jet.

112. (Previously presented) The method of claim 104 further comprising:

determining a ratio of mannuronate alginate subunits and guluronate alginate subunits to provide a predetermined elution characteristic of the alginate bioreactor; and

combining mannuronate alginate subunits, guluronate alginate subunits, the alginate solvent, and the therapeutic component or the cellular component to form the alginate solution with the determined ratio of mannuronate alginate subunits and guluronate alginate subunits.

113. (Previously presented) The method of claim 104 further comprising:

harvesting a viable cellular component from one of a host or a donor; and

mixing the harvested viable cellular component into the alginate solution prior to injecting the alginate solution.

114. (Previously presented) The method of claim 113, wherein the harvested viable cellular component comprises endogenous endothelial cells.

115. (Previously presented) The method of claim 104 further comprising:

reconstituting the cellular component in the alginate bioreactor, wherein the eluted therapeutic agent is released from the reconstituted cellular component.

116. (Canceled)